

RESEARCH NOTES

Welcome to Research Notes, a new feature of AJES that will bring you news from the research world in the Adirondacks. Who's doing what and where? Read on to find out!

Response of Submerged Aquatic Vegetation to Management of Eurasian Watermilfoil

The Adirondack Watershed Institute (AWI) has completed three years of intensive monitoring of native plant and Eurasian watermilfoil response to management in Upper Saranac Lake. The study will continue for at least ten years and thus has the potential to provide valuable long-term data on aquatic plants both for management purposes and also for better understanding of aquatic ecosystems. Read more about AWI at <http://www.paulsmiths.edu/PAGE=881/page.pl>.

Adirondack Lakes Assessment Program (ALAP)

This is a collaborative project between the AWI and the Residents' Committee to Protect the Adirondacks that utilizes trained volunteers to sample water quality of about 80 lakes (and growing) in the Park. The program began in 1999 and is meant to continue indefinitely. The objectives of ALAP are to (1) provide scientifically valid information on individual lakes and ponds to inform those associated with these water bodies of conditions and trends, (2) detect problems and implement management solutions early to minimize negative impacts, (3) establish a profile of water quality conditions and trends across the Adirondacks, and (4) encourage grassroots interest and participation in ecosystem stewardship by building a network of trained and informed citizens. Read more about AWI at <http://www.paulsmiths.edu/PAGE=881/page.pl>.

Long-term Monitoring Program for Evaluating Changes in Water Quality in Adirondack Lakes

As part of Adirondack Lakes Survey Corporation's primary goal of assessing seasonal and long-term patterns in the

chemistry of Adirondack waters, this long-term monitoring program allows for the assessment of emission or deposition changes in Adirondack lakes and provides reliable information on which pollution control measures can be based. The objectives of this program are to determine long-term trends and to evaluate episodic acidification for its potential impact on aquatic biota. Located downwind of Midwestern coal-burning power plants, the Adirondack Park is particularly susceptible to acidification created by sulfur dioxide and nitrogen oxide from fossil fuel combustion sources. A total of 52 lakes are monitored monthly in the Adirondack Park and data are used in part to determine the effectiveness of the 1990 Clean Air Act Amendments aimed at acid deposition. Results have shown improvements in some water quality measures but not all. To find more check out <http://www.adirondacklakessurvey.org>.

Distribution and Abundance of Boreal Birds in the Adirondacks

The Wildlife Conservation Society's Adirondack program is currently engaged in a study to assess the status and distribution of a suite of birds in the lowland boreal habitats of the Adirondack Park. Many of these birds are at the southern extent of their range in the Park, and climate change represents an important threat to their continued persistence in our region. Since 2003, WCS has been surveying birds in a variety of boreal habitats to learn about population trends for these species. This work will continue through 2009 and is part of a larger effort to document and understand the effects of a changing climate on the boreal regions of the Park. Read more about this work at <http://www.wcs.org/adirondacks>.

Predicting Hotspots of Herpetofauna Road Mortality

Tom Langen, a professor of Biology at Clarkson University, is conducting this

work to develop an accurate, practical method of predicting hotspots of amphibian and reptile road mortality, so that hotspots can be located for mitigation. Tom has been validating methodologies for road mortality surveys and using GIS to compare the results of road surveys (hotspots and coldspots of road mortality) with publicly available data on land use, road features, and wetland features. He has found that it is possible to accurately predict hotspots of herpetofauna highway mortality in northern New York using GIS, a useful tool for road managers and others concerned with the effects of roads on reptiles and amphibians. Read about this and other herpetological research at <http://people.clarkson.edu/~tlangen/HerpResearch.htm>.

Beech Bark Disease in the Adirondacks

The threat of invasive species to the Adirondack ecosystem has rightly received attention in recent years, yet one invasive complex, beech bark disease, has been a force of change in the Adirondacks since the 1960s. Researchers at the Adirondack Ecological Center in Newcomb have studied BBD impacts since its arrival, and continue to do so to understand changes to the northern hardwood forest. A recent project was designed to investigate the relationship of BBD to tree growth rate, mortality, and beechnut production. AEC staff studied American beech trees (*Fagus grandifolia*) at Huntington Wildlife Forest between 1988 and 2006, measuring tree diameter of 88 mature trees, trunk cankering, crown damage, and BBD stage in order to model the relationship among tree health, nut production, and disease severity. As expected, tree growth rate declined as BBD progressed, and beech trees at later stages of the disease were more likely to suffer mortality. Trees with more severe crown damage had lower diameter growth. While both trunk and crown damage were good

Compiled by Michale Glennon

predictors of tree mortality and reduced tree growth, models indicated that crown damage was the better predictor of future tree health. AEC staff are still analyzing the relationship of nut production after last fall's bumper mast crop, which was the highest in 20 years. Learn more about Huntington Forest research projects at <http://www.esf.edu/aec>.

Environmental Impacts of Deicing Road Salt

Winter road management practices, such as the use of chemical deicers and sand abrasives, can negatively impact the environment and human health. Tom Langen leads an interdisciplinary research team that studies the environmental impact of road salt and sand use at Cascade Lakes and Chapel Pond along New York State Route 73 with the goals of (1) assessing the impact of salt and sand on roadside soil and vegetation to determine whether winter road management caused a die-off of paper birch; (2) evaluating the impact of accumulated road salt and sand on the water quality and biota of the lakes adjacent to the road, with an emphasis

on understanding whether the endangered round whitefish is stressed due to degraded water quality in the lakes; and (3) recommending management options to relevant state agencies on how to mitigate and reduce the environmental impact of winter road management without compromising motorist safety or convenience. The New York State Department of Transportation funds the research. Results and management recommendations made by this research team are available at <http://people.clarkson.edu/~tlangen/Reprints/CascadeLakesFinalReport.pdf>.

Bear-human Conflict in the High Peaks Wilderness Area

Black bear and human negative interactions in the Marcy Dam–Lake Colden corridor in the eastern High Peaks Wilderness Area (HPWA) reached an unacceptable level in recent years. New York State Department of Environmental Conservation Region 5 Wildlife staff have been trapping bears in the HPWA in Essex County as part of a three-year study to understand home ranges, seasonal movements, habitat

use, and behavior of bears in the heavily used recreation area to help develop a nuisance black bear management plan. Bears were captured in foot snares or culvert traps, and fitted with GPS and radio collars to track their movements. Six adult bears and one cub have been captured as part of this work and a variety of negative conditioning methods have been employed on captured bears to determine relative effectiveness of different actions on deterring bears from the area. A Bear Resistant Canister Regulation has been in effect in the HPWA for more than a year and enforcement efforts have been greatly increased. Compliance with the regulation was reported high for the summer months, but lower late in the season. Data from trapping, hazing, camera sets, sighting forms, and staff observations are being used to determine population sizes, behaviors, and encounter rates for black bears in the High Peaks. Data from three years of bear study suggest that conflicts between bears and humans in the HPWA have lessened. Read more about this work at <http://www.dec.state.ny.us/website/reg5/hpbearstudy.html>.



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